

NSW Health Influenza Surveillance Report

Week 22 Ending 1 June 2014

Influenza Surveillance Forecast:

It is too early to predict which strain or strains will dominate this year and when the season will start. Currently, the same three influenza strains seen in 2013 are circulating again at low levels.

The impact of seasonal influenza in NSW this year is expected to be less than in 2013 given that:

- the influenza strains likely to predominate in NSW also circulated last season (so many people will have acquired immunity)
- the 2014 influenza vaccine is better matched to these strains than the 2103 vaccine, and the uptake of influenza vaccine in NSW this year has been higher than in recent years.

People in older age-groups are at higher risk of infection when influenza A(H3N2) is the dominant strain while younger people are more at risk of infection from the influenza A(H1N1)pdm strain.

Summary:

For the week ending 1 June 2014, influenza activity was low in NSW with no indication that the influenza season has started.

- [Emergency Department surveillance](#) – the index of increase for influenza-like illness (ILI) presentations was well below the seasonal threshold. Bronchiolitis presentations remain high.
- [Laboratory surveillance](#) – the proportion of respiratory samples positive for influenza A or B was low at 2.3%. RSV was the most commonly identified respiratory virus.
- [Community illness surveillance](#) – data collected from eGPS, ASPREN and Flu Tracking on ILI activity in NSW remain at inter-season levels.
- [Hospitalisations surveillance \(FluCAN\)](#) - one confirmed influenza admission reported.
- [Deaths with pneumonia or influenza reported on the death certificate](#) – The population death rate for influenza and pneumonia was below the epidemic threshold for this time of the year
- [National and International influenza surveillance](#) – new human cases of infection with the avian influenza A(H7N9) strain from China; otherwise decreasing influenza activity worldwide.

About this report:

Health Protection NSW collects and analyses surveillance data on influenza and related respiratory pathogens, and produces regular surveillance reports for the community and health professionals. Surveillance reports are produced weekly reports commencing in May and continuing until the end of the influenza season. Monthly reports are produced throughout the rest of the year.

The influenza surveillance reports include data from a range of surveillance systems and sources concerned with Emergency Department illness surveillance, laboratory (virological) surveillance, and community illness surveillance. Pneumonia and influenza mortality data are also monitored and reported upon periodically.

For further information on influenza see the [NSW Health Influenza website](#).

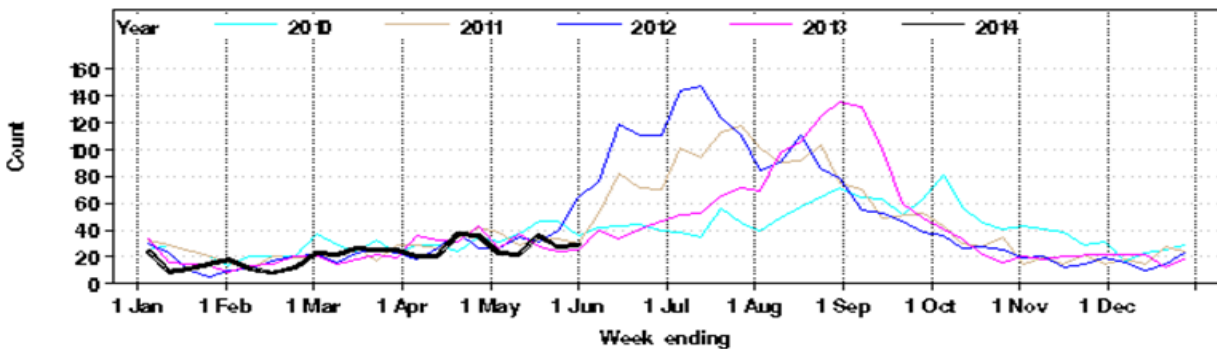
1. Emergency Department (ED) Surveillance ¹

Presentations for influenza-like illness (ILI) and other respiratory illness

The ED surveillance system uses a statistic called the ‘index of increase’ to indicate when presentations are increasing at a statistically significant rate. It accumulates the difference between the previous day’s count of presentations and the average for that weekday over the previous 12 months. An index of increase value of 15 is considered an important signal for the start of the influenza season in NSW as it suggests influenza is circulating widely in the community.

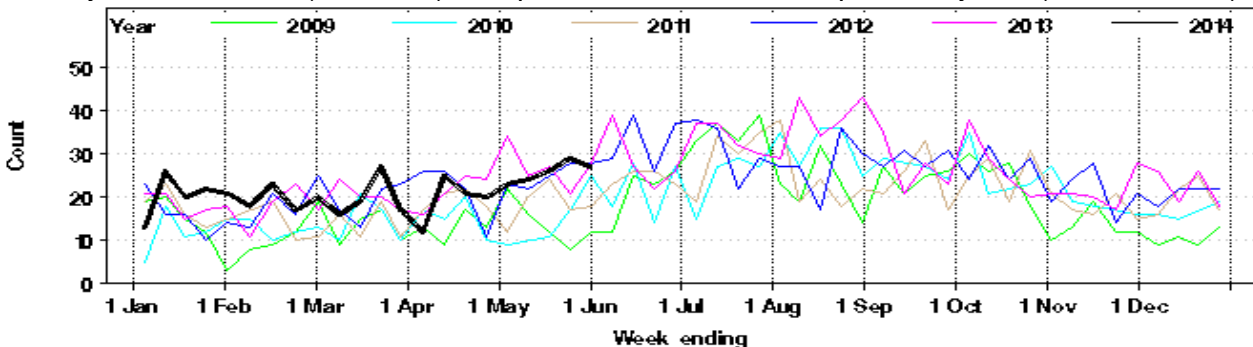
- On 1 June 2014, the index of increase for influenza-like illness presentations was 7.6, well below the threshold of 15, and suggested that the influenza season had not commenced in NSW.
- ILI activity was low this week at 0.9 cases per 1000 presentations. The total count for ILI presentations was steady this week and was within the usual range (Figure 1 and Table 1).
- Combined ILI and pneumonia admissions to critical care wards decreased this week and were within the usual range for this time of year, although at the upper level (Figure 2 and Table 1).
- The overall number of bronchiolitis presentations in infants decreased this week and was at the upper level for the time of year, but lower than to the peak in mid-April (Figure 3 and Table 1).
- The number of bronchiolitis presentations increased in South Western Sydney LHD to the highest level in at least 6 years (data not shown).

Figure 1: Total weekly counts of ED visits for influenza-like illness, from January – 1 June 2014 (black line), compared with each of the 5 previous years (coloured lines).*



* **Note:** Excludes 2009 data to enable comparison of 2013 data with data from previous non-pandemic years.

Figure 2: Total weekly counts of ED visits for pneumonia and ILI admitted to a critical care ward, from January – 1 June 2014 (black line), compared with each of the 5 previous years (coloured lines).



¹ **Source:** NSW Health Public Health Real-time Emergency Department Surveillance System (PHREDSS) is managed by the Centre for Epidemiology and Evidence, NSW Ministry of Health. Data from 59 NSW emergency departments (ED) are included. Comparisons are made with data for the preceding five years. Recent counts are subject to change.

Figure 3: Total weekly counts of ED visits for bronchiolitis, from January – 1 June 2014 (black line), compared with each of the 5 previous years (coloured lines).

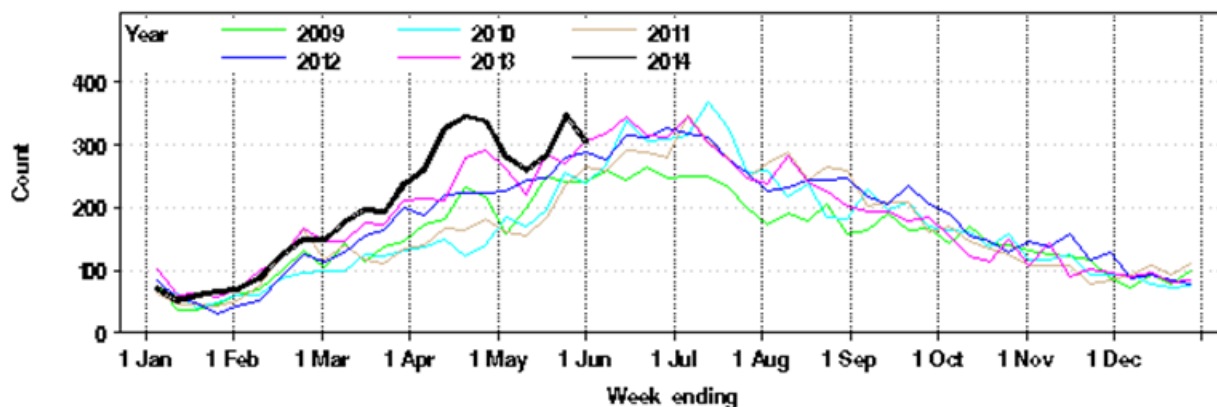


Table 1: Weekly ED and Ambulance Respiratory Activity Summary. Includes data from 59 NSW EDs and the Sydney Ambulance Division. *

Data source	Diagnosis or problem category	Trend since last week	Overall comparison with usual range for time of year	Statistically significant age groups (if any)	Statistically significant local increase (if any)	Action other than this report (if any)	Comment
ED presentations, 59 NSW hospitals	Influenza like illness (ILI)	Steady	Usual				
	Pneumonia	Increased	Usual				
	Pneumonia and ILI admissions	Increased	Usual				
	Pneumonia and ILI critical care admissions	Decreased	Usual				
	Bronchiolitis	Decreased	Usual		South Western Sydney LHD		Bronchiolitis is a disease of infants.
	Respiratory illness, fever or unspecified infections	Decreased	Usual				
	Asthma	Decreased	Usual				
Ambulance calls, Sydney region	Breathing problems	Decreased	Usual				

* **Notes on Table 1:** Statistically significant increases are shown in bold. Recent activity counts are subject to change. This is a routine general report for information on respiratory activity and is additional to public health situation reports that advise of unusual increases in activity in particular provisional ED diagnosis groupings or Ambulance problem categories.

2. Laboratory Surveillance

For the week ending 1 June 2014, the number and proportion of respiratory specimens reported by NSW sentinel laboratories² which tested positive for influenza was steady and remains low (Table 2 and Figure 4). A total of 1578 tests for respiratory viruses were reported with 36 specimens (2.3%) testing positive for influenza viruses. An additional 20 laboratory-confirmed influenza cases were

² **Source:** Participating sentinel laboratories include the following: South Eastern Area Laboratory Services, The Children's Hospital at Westmead, Sydney South West Pathology Service, Pacific Laboratory Medicine Service, Royal Prince Alfred Hospital, Hunter Area Pathology Service, Pathology West – Westmead & Pathology West - Nepean [no data from Oct 2010 to June 2011], Douglas Hanley Moir Pathology, VDRLab [data from 5 March 2010], Lavery Pathology [data from 1 April 2010 to February 2011], SydPath (St Vincent's) Pathology [data from Nov 2010], Medlab, and Lavery [data from September 2013].

notified to public health units during the reporting week (follow the link for more information on [notified influenza infections](#)).

Testing suggests that Influenza A and B viruses are circulating at similarly low levels, after the unseasonal spike in activity seen in January and February this year.

Respiratory syncytial virus (RSV) was the leading respiratory virus identified by laboratories this week, as is usual for this time of year, and rhinovirus identifications also remained high (Table 2).

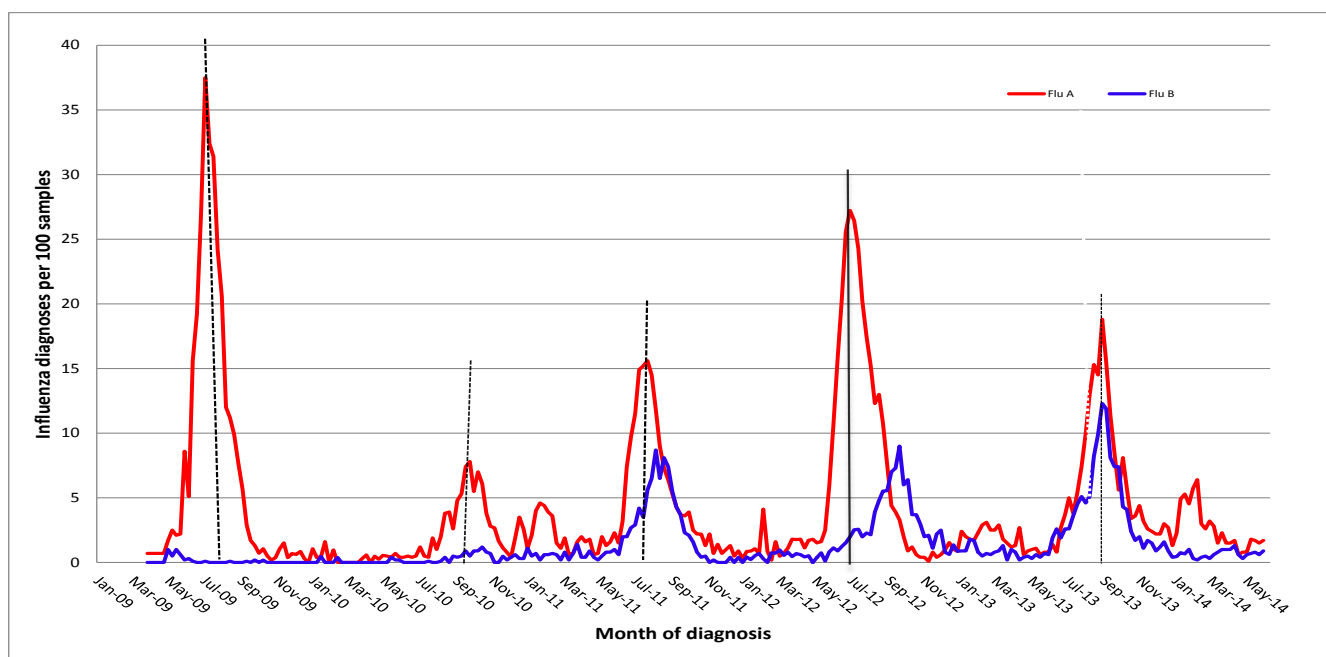
A total of 37 samples have been tested at the WHO Collaborating Centre for Reference and Research on Influenza, Melbourne for classification. Of these 26 (70%) were influenza A/California/7/2009-like and 11 (30%) were influenza a/Victoria/361/2011-like.

Table 2: Summary of testing for influenza and other respiratory viruses at NSW laboratories, 1 January to 1 June 2014.

Month ending	Total Tests	TEST RESULTS *															
		Influenza A								Influenza B		Adeno	Parainf 1, 2 & 3	RSV	Rhino	Entero	HMPV
		Total		H3N2 **		H1N1 pdm09		A (Not typed)		Total							
Total	(%)	Total	(%A) **	Total	(%A)	Total	(%A)	Total	(%)								
02/02/2014*	3541	163 (4.6%)	36 (22.1%)	31 (19.0%)	96 (58.9%)	23 (0.6%)					98	123	90	339	12	32	
02/03/2014	3413	127 (3.7%)	19 (15.0%)	38 (29.9%)	70 (55.1%)	12 (0.4%)					56	79	149	362	7	23	
30/03/2014	4843	95 (2.0%)	11 (11.6%)	36 (37.9%)	49 (51.6%)	41 (0.8%)					97	135	387	549	22	37	
27/04/2014	5360	64 (1.2%)	3 (4.7%)	15 (23.4%)	47 (73.4%)	45 (0.8%)					103	177	753	535	30	50	
01/06/2014*	7383	112 (1.5%)	8 (7.1%)	17 (15.2%)	87 (77.7%)	48 (0.7%)					115	159	1011	659	21	83	
Week ending																	
04/05/2014	1424	12 (0.8%)	0 (0.0%)	2 (16.7%)	10 (83.3%)	8 (0.6%)					23	44	228	137	8	22	
11/05/2014	1473	27 (1.8%)	1 (3.7%)	6 (22.2%)	20 (74.1%)	11 (0.7%)					21	30	213	108	2	12	
18/05/2014	1418	24 (1.7%)	4 (16.7%)	3 (12.5%)	17 (70.8%)	11 (0.8%)					22	34	170	134	4	12	
25/05/2014	1490	22 (1.5%)	2 (9.1%)	2 (9.1%)	18 (81.8%)	9 (0.6%)					16	25	199	136	4	24	
01/06/2014	1578	27 (1.7%)	1 (3.7%)	4 (14.8%)	22 (81.5%)	9 (0.6%)					33	26	201	144	3	13	

Note: * Five week reporting period. ** Subset of influenza A positive tests. Not all influenza A samples are typed; samples that test negative for A(H1N1)pdm09 are assumed to be A(H3N2). *** HMPV = Human metapneumovirus

Figure 4: Percent of respiratory samples positive for influenza A or influenza B, 1 January 2009 – 1 June 2014, New South Wales.



Note: Laboratory surveillance data is provided by laboratories on a weekly basis and includes point-of-care tests as of 10 August 2012. Serological diagnoses are not included.

Laboratory-confirmed influenza outbreaks in residential care facilities and other settings

There were no further influenza outbreaks in institutions reported this month, leaving just the two outbreaks in aged care facilities (ACF) reported in January (Table 3). There was one reported outbreak of human metapneumovirus reported in an ACF this week affecting 20 residents.

Table 3. Reported influenza outbreaks in NSW institutions, 2006 to May 2014.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014*
No. of outbreaks	2	25	9	1	2	4	39	12	2

Note: * Year to date.

Reports of influenza outbreaks in aged care facilities were uncommon from 2009 to 2011. This is thought to be as a result of the higher levels of sero-protection observed in people in older age-groups against the influenza A(H1N1)pdm09 strain which predominated in these years.

Influenza outbreak reports increased dramatically in 2012 when the influenza A(H3N2) strain predominated. Both strains of influenza A and an influenza B strain circulated during 2013.

3. Community Illness Surveillance

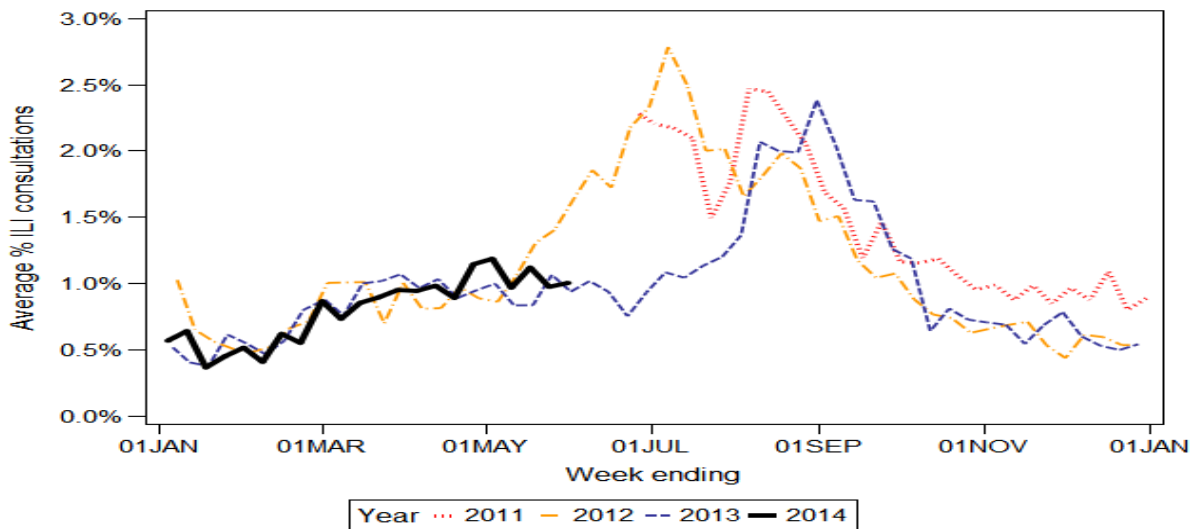
Electronic General Practice Surveillance (eGPS)

eGPS is a primary care influenza surveillance system involving sentinel general practices within three NSW Local Health Districts (LHD): Northern Sydney (NS), South Eastern Sydney (SES) and Illawarra Shoalhaven (IS). The system monitors patient consultations for influenza-like illness (ILI) as an indicator of influenza activity. Consultations for ILI are identified each week by an automatic search of electronic records for validated combinations of ILI terms rather than diagnosis codes.

Data generated from eGPS should be interpreted with caution as it is not representative of all practices within the participating LHDs or across NSW.

- In week 22 there were surveillance reports received from 12 sentinel practices in NSW (note that Northern Sydney LHD data was not available this week).
- The average rate for patient consultations was 1.0% (range 0.1 – 1.9%) (Figure 5). This is the same as the rate in the previous week and is below the usual range of ILI activity seen at this time in the three previous years.

Figure 5. Average rate of influenza-like –presentations to sentinel general practices, by week of consultation 2011-14



The Australian Sentinel Practices Research Network (ASPREN)

ASPREN is a network of sentinel general practitioners (GPs) run through the RACGP and the University of Adelaide that has collected de-identified information on influenza like illness and other conditions seen in general practice since 1991. GPs participating in the program report on the proportion of patients presenting with an ILI. The number of GPs participating on a weekly basis may vary.

- In week 22 there were 25 ASPREN reports received from NSW GPs. The overall consultation rate for ILI was low at 5.6%, consistent with inter-seasonal reporting.

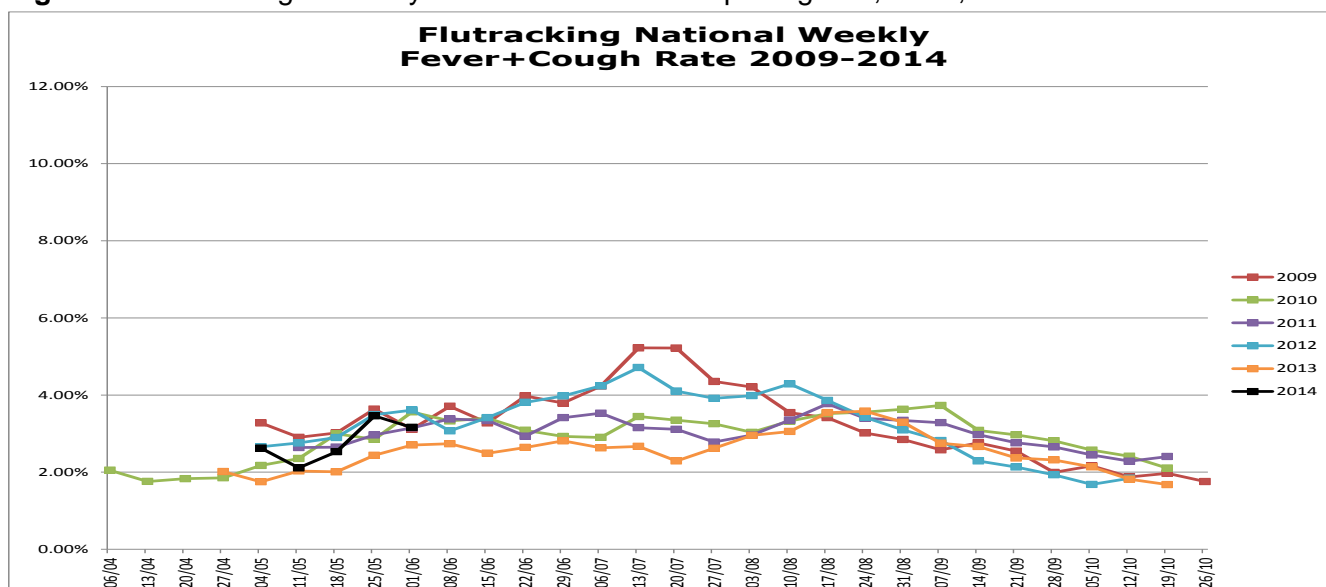
For further information please see the [ASPREN](#) website.

FluTracking.net

FluTracking.net is an online health surveillance system to detect epidemics of influenza. FluTracking is a project of the University of Newcastle, the Hunter New England Local Health District and the Hunter Medical Research Institute. It involves participants from around Australia completing a simple online weekly survey which is used to generate data on the rate of ILI symptoms in communities.

- For the week ending 1 June, FluTracking received reports for 5742 people in NSW. Fever and cough reports decreased to 3.2% of respondents and was within the usual range for this time of year (Figure 6). Overall, 1.7% of respondents reported fever, cough and absence from normal duties.

Figure 6: FluTracking – Weekly influenza like illness reporting rate, NSW, 2009 – 2014.



For further information please see the [FluTracking](#) website.

FluCAN (The Influenza Complications Alert Network)

In 2009, [A Rapid Alert System for Severe Respiratory Illness: The FluCAN Surveillance system](#) was created with the involvement and support of the Thoracic Society of Australia and New Zealand and funding from the NHMRC. The aim of FluCAN was to establish and maintain a real-time sentinel hospital surveillance system for acute respiratory disease requiring hospitalisation, which could provide a reliable and timely source of information that could be used to inform public health policy. In NSW, three hospitals participate in providing weekly data; Westmead Hospital, John Hunter Hospital and the Children’s Hospital at Westmead.

- In week 22 there was one confirmed influenza admission reported at NSW sentinel hospitals.
- Since 7 April 2014 there have been four hospital admissions reported – all were paediatric cases.

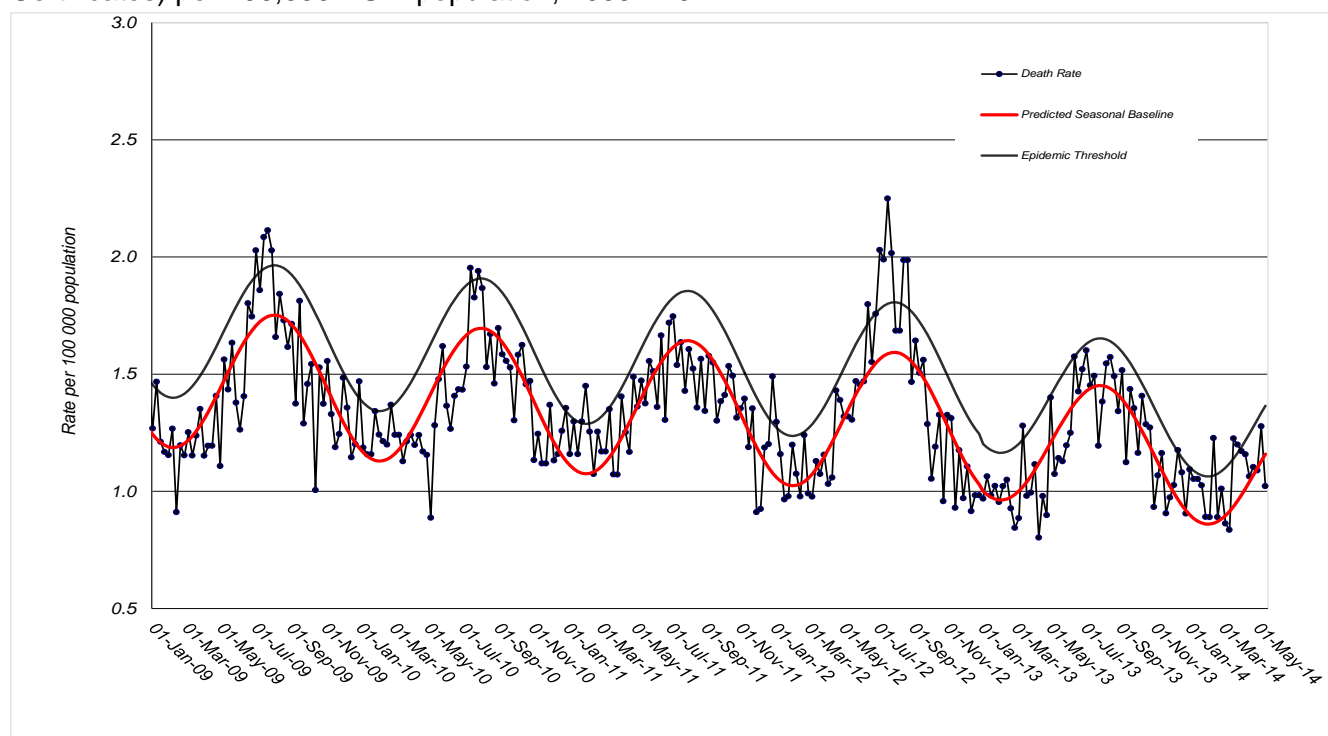
4. Deaths with pneumonia or influenza reported on the death certificate

Deaths registration data is routinely reviewed for deaths attributed to pneumonia or influenza. While pneumonia has many causes, a well-known indicator of seasonal and pandemic influenza activity is an increase in the number of death certificates that mention pneumonia or influenza as a cause of death. The predicted seasonal baseline estimates the predicted rate of influenza or pneumonia deaths in the absence of influenza epidemics. If deaths exceed the epidemic threshold, then it may be an indication that influenza is beginning to circulate widely.

For the week ending 16 May:

- There were 1.02 pneumonia or influenza deaths per 100,000 NSW population, which is below the epidemic threshold of 1.36 per 100,000 population (Figure 7).
- Up to 16 May, out of 17,882 deaths there were 4 death certificates mentioning influenza, and 1,567 mentioning pneumonia. Of the deaths mentioning influenza all were in elderly people.

Figure 7: Rate of deaths classified as influenza and pneumonia (by NSW Registered Death Certificates) per 100,000 NSW population, 2009 - 2014.



Source: NSW Registry of Births, Deaths and Marriages.

*** Notes on interpreting death data:**

- (1) The number of deaths mentioning "Pneumonia or influenza" is reported as a rate per 100,000 NSW population. Using the NSW population provides a more stable and reliable denominator than deaths from all causes. This is because pneumonia and influenza are known to contribute to increases in deaths from non-respiratory illnesses, such as deaths due to ischaemic heart disease. As the number of these deaths will increase with rises in influenza activity, the actual effect of influenza on mortality rates will be obscured if all-cause mortality is used as the denominator. This limitation is avoided by using the NSW population, which is relatively constant throughout the year, as the denominator.
- (2) Deaths referred to a coroner during the reporting period may not be available for analysis. Deaths in younger people may be more likely to require a coronial inquest. Therefore influenza-related deaths in younger people may be under-represented in these data.
- (3) The interval between death and death data availability is usually at least 7 days, and so these data are one week behind reports from emergency departments and laboratories. In addition, previous weekly rates may also change due to longer delays in reporting some deaths.

5. National and International Influenza Surveillance

National Influenza Surveillance

Although national influenza surveillance reports are not produced at this time of year, most jurisdictions are reporting low influenza activity.

For further information on the National Notifiable Disease Surveillance System, which includes laboratory-confirmed influenza reports, see: <http://www9.health.gov.au/cda/source/cda-index.cfm> .

Avian influenza in Humans

Human infection with avian influenza A(H7N9) viruses: According to the most recent update on avian influenza A(H7N9) available on the Hong Kong Centre for Health Protection [website](#), as of 4 June 2014, a total of 433 human cases of avian influenza A(H7N9) have been confirmed in the Mainland, with 280 of these have reported 2014.

There remains no evidence of sustained human-to-human transmission and most cases are linked to exposure to poultry, particularly in live poultry markets. The disease is mild in poultry so outbreaks remain difficult to detect.

Influenza activity worldwide

WHO summaries of global influenza activity as of 2 June noted the following:

- In North America, influenza levels were at inter-seasonal levels with influenza B circulation still detected.
- In Europe, influenza activity remained at inter-seasonal levels in most countries.
- In eastern Asia, influenza activity approached inter-seasonal levels in most countries with influenza B virus predominating at low levels.
- In southern and south-eastern Asia, influenza activity continued to decline in most countries, except the Islamic Republic of Iran where a slight increase was observed. In northern Africa and western Asia, influenza activity remained low in most countries.
- In the southern hemisphere, influenza activity remained low, although in some of the countries in the temperate zone of South America increase in ILI activity with small increase in influenza detections was observed.

WHO FluNet laboratory reporting during weeks 19 and 20 (4 May to 17 May 2014) noted:

- Of the 31 706 respiratory specimens tested, 2920 (9.2%) were positive for influenza viruses. Of these, 48.5% were typed as influenza A and 51.5% as influenza B.
- Of the sub-typed influenza A viruses, 30% were influenza A(H1N1)pdm09 and 70% were influenza A(H3N2).
- Of the characterized B viruses, 94% belonged to the B-Yamagata lineage and 6% to the B-Victoria lineage.

For further information see the full WHO report at: [WHO influenza update No 212](#).

Useful influenza surveillance links

- Follow the link for the [Australian Influenza Surveillance Reports](#) which provide the latest information on national influenza activity.
- Follow the link for the [World Health Organization Global Influenza Programme](#).
- Follow the link for Australia's [WHO Collaborating Centre for Reference and Research on Influenza](#), part of an international network of centres analysing influenza viruses currently circulating in the human population in different countries around the world. The centre also provides information on the [current vaccine recommendations](#) for influenza.

Composition of 2014 Australian influenza vaccines

The [Australian Influenza Vaccine Committee](#) (AIVC) met on 10 October 2013 and made recommendations for the influenza vaccine components for the Australian 2014 influenza season.

The 2014 trivalent influenza vaccines differ from the 2013 season trivalent vaccines as they contain two new strains. The H1N1 pandemic influenza virus strain, A(H1N1)pdm09, remains in the vaccine but the second influenza A strain and the influenza B strain are different from previous years.

The changes in the vaccine are based on changes in the expected circulating strains this year so it will be especially important for those who are at risk to be vaccinated.

The strains in the 2014 southern hemisphere trivalent seasonal influenza vaccines are:

- A (H1N1): an A/California/7/2009 (H1N1) - like virus, 15 µg HA per dose
- A (H3N2): an A/Texas/50/2012 (H3N2) - like virus, 15 µg HA per dose
- B: a B/Massachusetts/2/2012 - like virus, 15 µg HA per dose

The 2014 Influenza vaccination campaign under the National Immunisation Programme was launched on 15 March 2014. Follow the link for more information on the 2014 campaign:

<http://www.immunise.health.gov.au/> .